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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/748,430	12/26/2000	Kwan-Lae Kim	5000-1-182	4460

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EXAMINER

BELLO, AGUSTIN

ART UNIT PAPER NUMBER

2633

DATE MAILED: 12/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/748,430	<b>Applicant(s)</b> KIM ET AL.	
	<b>Examiner</b> Agustin Bello	<b>Art Unit</b> 2633	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 October 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/18/04 has been entered.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tai (U.S. Patent 6,341,040).

Regarding claim 1, Tai teaches a node system for increasing the capacity of a wavelength division multiplexing (WDM) system, comprising: means for interleaving (reference numeral 1020 in Figure 10) a plurality of optical signals received therein into a predetermined number of channels; at least one demultiplexer (reference numeral 1030 in Figure 10) coupled to one of the output of said channels for demultiplexing said optical signals received via said one output into a prescribed number of channels; at least one multiplexer (reference numeral 1040 in Figure 10) for multiplexing the respective demultiplexed optical signals outputted from said prescribed channels of said demultiplexer; and, means for deinterleaving (reference numeral 1050 in Figure

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10) said optical signal outputted from said multiplexer to be forwarded to a next node. Tai differs from the claimed invention in that Tai fails to specifically teach that coupled to the interleaving means, is an output terminal without forward connection, to which output of at least an additional channel for an additional, interleaved optical signal is to be coupled, for future connection of the terminal to an additional demultiplexer in the even the system is expanded so as to provide said forward connection. However, one skilled in the art would clearly have recognized that it would have been possible to include an additional output terminal in the device of Tai for such a situation. Furthermore, Tai suggests that the system could include multiples of the components shown (column 6 lines 56-64), thereby suggesting the possibility of additional output terminals. Moreover, it would have been obvious to one having ordinary skill in the art at the time the invention was made to allow for expandability of the system by providing additional output terminals from the interleaving means, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Regarding claim 2, Tai teaches a node system for increasing the capacity of a wavelength division multiplexing (WDM) system, comprising: means for interleaving a plurality of optical signals received therein into a predetermined number of channels (reference numeral 1020 in Figure 10); a plurality of demultiplexers (reference numeral 1030, 1035 in Figure 10) coupled to the respective output of said predetermined channels for demultiplexing the output optical signal from said respective channel into a prescribed number of channels; a plurality of multiplexers (reference numeral 1040, 1045 in Figure 10) for multiplexing the respective demultiplexed optical signals from said plurality of demultiplexers; and, means for deinterleaving said optical

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signals outputted from the respective output of said plurality of multiplexers to be forwarded to a next node (reference numeral 1050 in Figure 10). Tai differs from the claimed invention in that Tai fails to specifically teach that coupled to the interleaving means, is an output terminal without forward connection, to which output of at least an additional channel for an additional, interleaved optical signal is to be coupled, for future connection of the terminal to an additional demultiplexer in the even the system is expanded so as to provide said forward connection.

However, one skilled in the art would clearly have recognized that it would have been possible to include an additional output terminal in the device of Tai for such a situation. Furthermore, Tai suggests that the system could include multiples of the components shown (column 6 lines 56-64), thereby suggesting the possibility of additional output terminals. Moreover, it would have been obvious to one having ordinary skill in the art at the time the invention was made to allow for expandability of the system by providing additional output terminals from the interleaving means, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Regarding claim 3, Tai teaches a method for increasing the capacity of a wavelength division multiplexing (WDM) system of the type having a pair of interleaver and deinterleaver and at least one pair of multiplexer and demultiplexer disposed between said interleaver and said deinterleaver, the method comprising the steps of: upon receiving a plurality of optical signals from different sources by said interleaver, interleaving said received optical signals into a predetermined number of channels; demultiplexing, by said demultiplexer, said interleaved optical signals received from the respective said predetermined channel into a prescribed number of channels; multiplexing, by said multiplexer, said demultiplexed optical signals received from

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the respective said prescribed channel of said demultiplexer; and, deinterleaving said multiplexed optical signals into one transmission channel to be forwarded to a next node. (as seen in Figures and discussed above). Tai differs from the claimed invention in that Tai fails to specifically teach that coupled to the interleaving means, is an output terminal without forward connection, to which output of at least an additional channel for an additional, interleaved optical signal is to be coupled, for future connection of the terminal to an additional demultiplexer in the even the system is expanded so as to provide said forward connection. However, one skilled in the art would clearly have recognized that it would have been possible to include an additional output terminal in the device of Tai for such a situation. Furthermore, Tai suggests that the system could include multiples of the components shown (column 6 lines 56-64), thereby suggesting the possibility of additional output terminals. Moreover, it would have been obvious to one having ordinary skill in the art at the time the invention was made to allow for expandability of the system by providing additional output terminals from the interleaving means, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Regarding claims 4-15, Tai discloses the claimed invention except for additional forward and backward terminals. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include additional forward and backward terminals for future expansion, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

***Response to Arguments***

4. Applicant's arguments filed 10/18/04 have been fully considered but they are not persuasive. The applicant argues that the examiner's position that mere duplication of the essential working parts of the invention would involve only routine skill in the art is incorrect. However, the examiner disagrees. As stated in the office action and supported by *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8, the examiner believes that one skilled in the art would clearly have recognized that it would have been beneficial and obvious to include an extra output terminal, demultiplexer, and multiplexer, with these elements being reserved for future expansion of the system. The examiner maintains that it is well known in the art to include reserve elements in an optical communication system for future expansion. Furthermore, *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8 provides that it is mere duplication of the essential working parts of the invention would involve only routine skill in the art. In this case, mere duplication of the interleaver output terminals, the demultiplexers, the multiplexers, and the input to the de-interleaver taught by the prior art would have involved only routine skill in the art. Moreover, in providing the duplication of parts for future expansion, one skilled in the art would clearly have recognized that the part should not be connected until needed, and hence delay in providing a forward connection. As such, the examiner maintains that the rejection based on the prior art and *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8 is proper.

***Conclusion***

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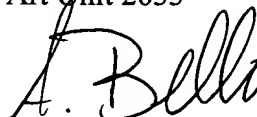
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Agustin Bello whose telephone number is (571) 272-3026. The examiner can normally be reached on M-F 8:30-6:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Agustin Bello  
Examiner  
Art Unit 2633

A handwritten signature in black ink, appearing to read "A. Bello", is written over the printed name and title.

AB